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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,535	01/15/2002	Xiangshu Wei	47433/RRT/C636	4988

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CHRISTIE, PARKER & HALE, LLP
PO BOX 7068
PASADENA, CA 91109-7068

EXAMINER

PALADINI, ALBERT WILLIAM

ART UNIT	PAPER NUMBER
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2125

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,535

Applicant(s)

WEI ET AL.

Examiner

Albert W. Paladini

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 January 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-21 and 37-50 is/are allowed.
- 6) ☒ Claim(s) 22-36 and 51-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.
2. Claims 22-36 and 51-62 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22

The limitation "transferring the solutions of the numerical equations to respective regions of the image" is not understood. From the first three steps, it appears that some type of mathematical model has been formed which somehow quantifies image data for each region of the image. Since the "regional conditions in the image" have been obtained in the first step, it is assumed that the image has been quantified at that point. The step of "transferring solutions of the numerical equations" is not understood. How are solutions of equations transferred?

Claim 51

The first step recites, "establishing numerical relationship between visual appearance of the biometric image". The claim recites establishing a relationship, but only recites "visual appearance of the biometric image" as one element in the

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relationship, but does not recite an element that the biometric image is related to. The relationship must be between “visual appearance of the biometric image” and a second element.

Appropriate correction and clarification is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 22, 25, 51, 53, and 55 are rejected under 35 U.S.C. 102(b) as being anticipated by Fu (5754697).

This rejection is made by addressing those limitations of the claims, which are understood.

Fu discloses a method of storing information using image compression, and from line 30 in column 10 to line 4 in column 11, Fu teaches solving partial differential equations considering the boundary conditions in order to obtain edge data for respective regions of the image.

5. Claims 22, 25, 51, 53, and 55 are rejected under 35 U.S.C. 102(b) as being anticipated by Angenent (6697538).

This rejection is made by addressing those limitations of the claims, which are understood.

Angenent discloses an apparatus for producing a flattening map of a digitized image, and on lines 14-42 in column 6 teaches the use of obtain solutions of partial differential equations to obtain regions of the image where a first set of data comprises discrete surface elements to represent at least a portion of a surface of the digitized image.

Allowable Subject Matter

6. Claims 1-21 and 37-50 are allowed.
7. Claims 23, 25, 54, and 56 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.
8. The following is a statement of reasons for the indication of allowable subject matter:

None of the references cited or the art searched disclose or teach alone or in combination the simultaneous use of partial differential equations and difference equations which correspond to the partial differential equations to obtain features of an image having a plurality of ridges and mesh points by mapping the solutions of the difference equations, as recited in claims 1 and 37.

None of the references cited or the art searched disclose or teach alone or in combination mapping the plurality of intrinsic properties of the image into coefficients of

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the partial differential equations in combination and in the same relationships with the other limitations of claims 23 and 52.

None of the references cited or the art searched disclose or teach alone or in combination normalizing the image to reduce variations in gray-level values along the ridge of the image in combination and in the same relationships with the other limitations of claims 25 and 54.

None of the references cited or the art searched disclose or teach alone or in combination integralizing the image to produce a group of integral points within a region R and an internal boundary as recited in claim 56.

Relevant Prior Art

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lanckton (5517418) discloses a terrain mapping system using GPS satellites, sensors, and cameras, where the locations of dots of two images are used in conjunction with photogrammetric equations and a mathematical model of the cameras to derive a precise location of a feature in relation to a collection platform.

Sukthankar (6618076) discloses a method and apparatus for calibrating a projector camera system using eigenvalues of transformation matrices to map points between the camera image frame to the source image frame.

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10. Any inquiry concerning this communication or earlier communication from the examiner should be direct to Albert W. Paladini whose telephone number is (571) 272-3748. The examiner can normally be reached from 7:00 to 3:00 PM on Monday, Tuesday, Thursday, and Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Leo P. Picard, can be reached on (571) 272-3749. The official fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

August 4, 2005



Albert W. Paladini
Primary Examiner
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